

ABSTRACT

The electric machine of the present invention comprises a first coil group containing a plurality of coils and a magnet group. The first coil group is classified into M phase sub coil groups, with the coils of the sub coil groups aligned one at a time in sequence at a specified sub coil group interval D_c from the first phase sub coil group to the M-th phase sub coil group. A sub coil group interval D_c is set to a value of K/M times a magnetic pole pitch P_m (K is a positive integer excluding an integral multiple of M) where the distance corresponding to an electrical angle of π is defined as the magnetic pole pitch P_m . The adjacent sub coil groups are driven at a $(K/M) \pi$ phase difference. Each coil have substantially no magnetic material core.